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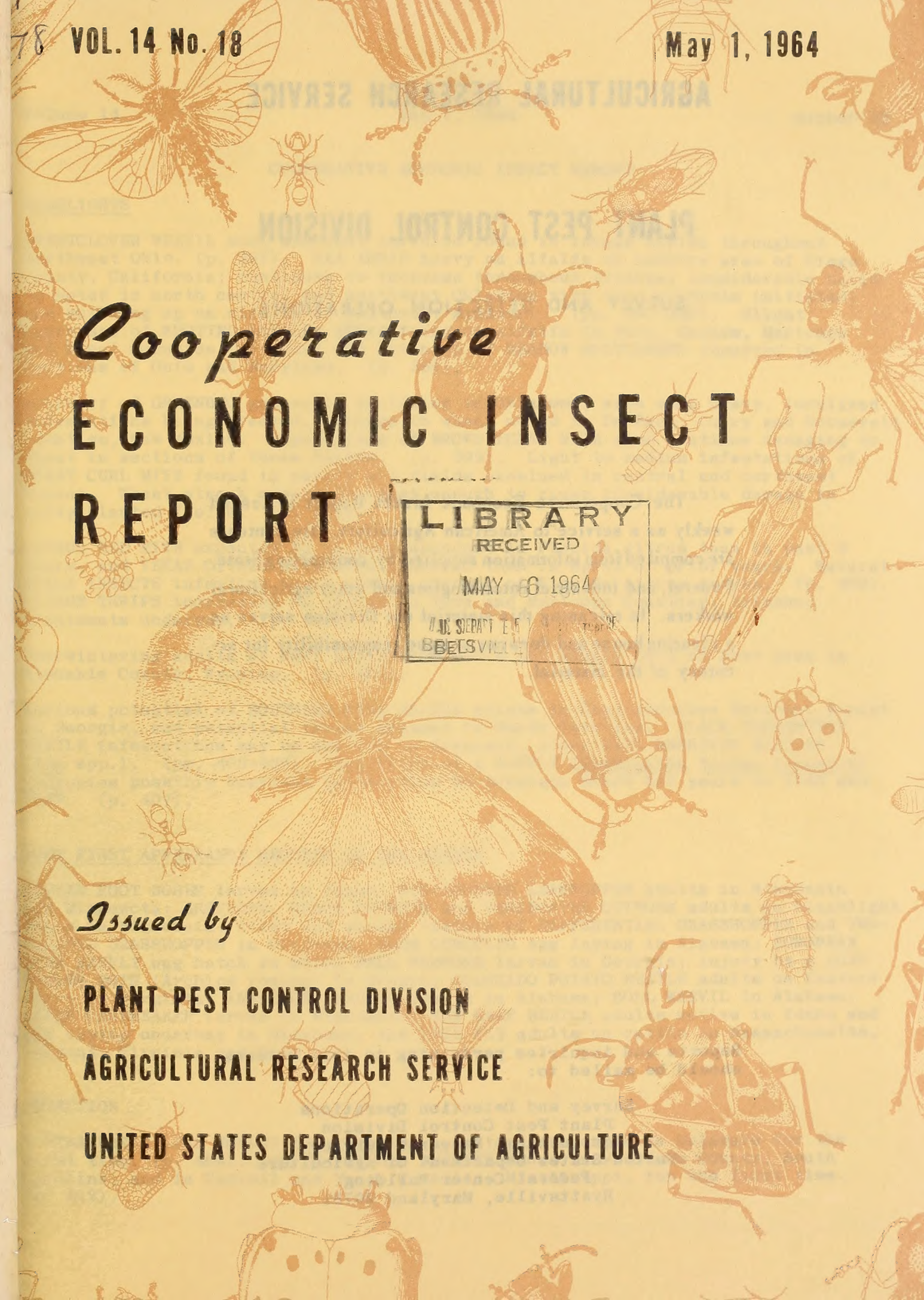

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VOL. 14 No. 18

May 1, 1964

Cooperative
ECONOMIC INSECT REPORT

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Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

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Volume 14 May 1, 1964 Number 18

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

SWEETCLOVER WEEVIL most abundant curculio found in forage fields throughout northwest Ohio. (p. 397). PEA APHID heavy on alfalfa in Lemoore area of Kings County, California; continues to increase throughout Arizona; considerable build-up noted in north central and northwest Oklahoma with some controls initiated; and building up on alfalfa in southwest Missouri. (pp. 397-398). Slight increases of SPOTTED ALFALFA APHID found on alfalfa in Yuma, Graham, Maricopa and Pinal Counties, Arizona; and hatching of MEADOW SPITTLEBUG observed in sections of Ohio and Maryland. (p. 398).

Activity of GREENBUG generally declining in Oklahoma, with some heavy, localized infestations being treated. Damage to wheat noted in De Baca, Curry and Roosevelt Counties, New Mexico. Populations of BROWN WHEAT MITE also continue damaging to wheat in sections of those States. (p. 399). Light to medium infestations of WHEAT CURL MITE found in nearly all fields examined in central and northwest Kansas. Wheat streak mosaic abundant enough to cause considerable damage in early planted fields. (p. 400).

CITRUS RED MITE expected to be more abundant in Florida citrus than in past 3 years, and TEXAS CITRUS MITE more abundant than in April of prior years. Several SCALE INSECTS infesting above normal percent of Florida citrus groves. (p. 402). CITRUS THRIPS increasing on citrus in Yuma and Maricopa Counties, Arizona; treatments underway. (p. 403).

Overwintering adults of BEET LEAFHOPPER 0.5-4 per square foot of host area in Washakie County, Wyoming. (p. 404).

Serious potential of SOUTHERN PINE BEETLE exists in Chattahoochee National Forest in Georgia, and potential threat present in North Carolina. BLACK TURPENTINE BEETLE infestations may be serious in Arkansas, along with ENGRAVER BEETLES (Ips spp.). (pp. 405-406). Egg hatch of a SAWFLY (Neodiprion taedae linearis) indicates possibly heaviest infestation in Arkansas since bad years of 1946 and 1947. (p. 407).

SOME FIRST APPEARANCE RECORDS OF THE SEASON

CLOVER ROOT BORER larvae in Idaho; SIX-SPOTTED LEAFHOPPER adults in Wisconsin and Minnesota; ARMYWORM, BLACK CUTWORM and VARIEGATED CUTWORM adults in blacklight traps in Wisconsin; first and second instars of DIFFERENTIAL GRASSHOPPER and TWO-STRIPED GRASSHOPPER in Oklahoma; PLUM CURCULIO egg laying in Alabama; EUROPEAN PINE SAWFLY egg hatch in Ohio; FALL WEBWORM larvae in Georgia; injury by a LEAF ROLLER MOTH (Archips rosana) in Oregon; COLORADO POTATO BEETLE adults on Eastern Shore of Virginia; ASPARAGUS BEETLE adults in Alabama; BOLL WEEVIL in Alabama; LARCH CASEBEARER larvae in Wisconsin; ELM LEAF BEETLE adults active in Idaho and egg laying underway in Oklahoma; and FACE FLY adults on cattle in Massachusetts, Vermont, Virginia and Ohio.

DETECTION

A STRAWBERRY LEAF ROLLER (Olethreutes cespitana) reported in Delaware for the first time. (p. 404). WHITE-FRINGED BEETLES found in Marlboro County, South Carolina, and in Carroll and Yazoo Counties, Mississippi, for the first time. (p. 412).

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 410).

Hawaiian Insect Notes. (p. 414).

Interceptions of Special Interest at U.S. Ports of Entry. (p. 415).

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NOTE: Reproduced on pages 417-426 of this issue is PPC DIVISION MEMORANDUM NO. 801.31 on the procedures for handling pesticides safely. Although this material was prepared for Plant Pest Control Division employees, it is believed it will be of interest to everyone associated with pesticides.

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Reports in this issue are for week ending April 24, unless otherwise indicated

WEATHER OF THE WEEK ENDING APRIL 27

Violent storms occurred on several days over mid-America during the week ending April 27. Heavy rains produced weekly totals above 8 inches from Arkansas to Alabama, continuing the heavy rainfall pattern that has persisted for several weeks in that general area. Substantial rains fell over most of the Corn Belt. Little rain of importance fell over the Far Southwest. Parts of the northern Rocky Mountains received more than 0.50 inch. Much of western Wyoming received more than 1.00 inch of precipitation during the week. Totals exceeded 2.00 inches over northern Illinois, central Indiana, and most of Ohio except the extreme south. Amounts ranged widely over the Southeast from 0.05 inch at Apalachicola, Florida, to 5.00 inches or more from Texas to Alabama. The total at Byrd, Texas, was more than 10.00 inches.

Temperatures averaged below normal west of 105° west longitude and over several northeastern States and above normal over the rest of the Nation. Most of the Great Basin averaged at least 10° colder than normal. Oklahoma and nearby portions of neighboring States, along with parts of central Kentucky and Tennessee, averaged 6° or more warmer than normal. Temperature departures ranged from -14° at Pocatello, Idaho, to +8° at Wichita Falls, Texas, Oklahoma City, Oklahoma, and Evansville, Indiana.

Early Monday morning, April 20, a front stretched from southern Colorado to Virginia. Showers and thunderstorms occurred over parts of 21 States from Utah to New Jersey. The most severe activity was from Kansas to Indiana. A band of rainy weather extended from the central Rocky Mountains to the Atlantic Ocean. Wind gusts at Grand Island, Nebraska, reached 90 m.p.h. Hail fell at scattered locations in eastern Nebraska, eastern Kansas, and northern Missouri. Tornadoes struck Texas, Oklahoma, Kansas, Nebraska, Iowa, and Missouri. Showers and thunderstorms continued Tuesday over a 13-State area from Texas to the Great Lakes. A wide band of strong winds, cold rain, and, along the Canadian border, snow occurred as the storm moved northeastward across Minnesota. Severe thunderstorms occurred over the Ohio River Valley.

(Weather continued on page 416).

CEREAL AND FORAGE INSECTS

ALFALFA WEEVIL (Hypera postica) - VIRGINIA - Infestations very light to light in Giles, Alleghany, Bath, Rockingham, Shenandoah, Warren, Frederick, Fauquier, Augusta and Botetourt Counties; medium to severe in Culpeper, Madison, Greene and Rockbridge Counties. Adults extremely abundant and active, a high percentage mating when observed, in all fields sampled. Egg masses encountered only in severely infested fields. Early instars only present in lightly infested fields, with third and fourth-stage larvae dominant in heavily infested fields. (Tarpley). Larvae ranged 3-7 per tip in 7-acre field and 5-7 per tip in 2-acre field of alfalfa in Pittsylvania County. (Dominick). Larvae continue severe in Campbell County alfalfa. (Ellis). Larvae averaged 66 per sweep in alfalfa 10-15 inches high near Darlington Heights, Prince Edward County, and causing fairly heavy damage. Sweeps in alfalfa 8-12 inches tall at Steeles Tavern, Augusta County, yielded 185 larvae and 10 adults per 100 sweeps. Scattered damage just becoming evident. (Pienkowski). Larvae present in all alfalfa in Culpeper County; 12-18 per stalk in some fields. (Heltzel). Active in Lunenburg County; many farmers applied controls. (Powers). MARYLAND - Injury from developing larvae ranged from light to moderate in central and western sections to moderate to heavy in eastern and southern areas. (U. Md., Ent. Dept.). DELAWARE - Larval feeding injury variable, but very noticeable in few fields in New Castle and Kent Counties. Injury greatest in one field in southern Kent County where larvae (all instars) averaged 10 per sweep. (Burbutis). NEW JERSEY - Larvae observed in alfalfa from Burlington County south; buildup expected in 2-3 weeks. (Ins.-Dis. Newsltr.). OHIO - Two adults and 6 larvae collected in 12 sweeps of alfalfa near Ironton, Lawrence County. Feeding damage spotty. (Crawford). KANSAS - No larvae or adults found in alfalfa in northwest area. (Peters). COLORADO - No larvae taken in sweepings to April 23 in Mesa County. (Bulla). UTAH - Adults active in Utah, Weber and Cache County alfalfa; some feeding injury noted on young plant growth. (Knowlton). WYOMING - No adult activity noted in alfalfa in Goshen and Platte Counties as of April 19. Adults noted for first time this season in alfalfa fields of Washakie County; averaged 1-2 per square foot; approximately 60 percent of fields had controls applied. (Marks).

CLOVER LEAF WEEVIL (Hypera punctata) - MARYLAND - Larvae causing conspicuous injury to red and ladino clover in several areas of State. (U. Md., Ent. Dept.). MISSOURI - Counts in southwest ranged 0-4 per square foot; those larvae infested with a fungus ranged from 50 to 100 percent (average 85 percent). Very little damage noted in alfalfa. (Houser, Thomas, Wood).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - MARYLAND - Adults ranged 1-2 per 10 sweeps on red clover in Talbot County. (U. Md., Ent. Dept.).

A WEEVIL (Hypera brunneipennis) - ARIZONA - Results of dissection of 100 fourth-stage larvae collected April 16 showed 15 percent parasitized by Bathyplectes curculionis. Specimens collected in Tucson area of Pinal County. (Lieberman).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - OHIO - Most abundant curculio found in forage fields throughout northwest area. Adults 15-20 per 25 sweeps near Findlay, Hancock County. Moderate feeding damage occurring on sweetclover seedlings. (Forsythe, Lyon).

A WEEVIL (Sitona scissifrons) - WISCONSIN - Appearing commonly in alfalfa in Crawford, La Crosse and Trempealeau Counties. (Wis. Ins. Sur.).

CLOVER ROOT BORER (Hylastinus obscurus) - IDAHO - Larvae heavily infesting a second-seed-year red clover field in Canyon County; first report of insect in 1964. (Waters).

PEA APHID (Acyrthosiphon pisum) - CALIFORNIA - Populations of nymphs and adults heavy on alfalfa in Lemoore, Kings County. (Cal. Coop. Rpt.). ARIZONA - Continues to increase on alfalfa throughout State. Ranged light to heavy in Yuma and Graham Counties and medium to heavy in Maricopa and Pinal Counties. (Ariz. Coop.

Sur.). NEW MEXICO - Light, spotted infestations in alfalfa in De Baca, Quay, Roosevelt, Chaves and Eddy Counties. (N.M. Coop. Rpt.). OKLAHOMA - Light, 50-200 per 10 sweeps, in southwest and west central counties. Moderate to heavy in north central and northwest counties, with considerable buildup noted. Some controls initiated. (Okla. Coop. Sur.). ARKANSAS - Light, about 75-100 per 100 sweeps, in alfalfa in Washington County. (Ark. Ins. Sur.). MISSOURI - Building up on alfalfa in southwest. Heaviest infestations found in Jasper, Newton and McDonald Counties; ranged 25-200 per 100 sweeps. Spots of heavy infestations in Jasper County fields. (Houser, Thomas, Wood). KANSAS - Averaged about 50 per sweep on 6-8 inch alfalfa in Ellis County, central area. (Harvey). Ranged from 10 to over 1,100 per 100 sweeps (averaged less than 50 per 100 sweeps) on 2-6 inch alfalfa in north central and northwest areas. (Peters). NEBRASKA - Very light populations, less than 1 per 10 sweeps, present in south and southeast areas. (Bergman). WISCONSIN - Populations mostly unchanged; stem mothers nearly mature in many fields and embryos being formed. (Wis. Ins. Sur.). OHIO - Egg hatch occurred throughout State. Nymphs easily found in Williams County, northwest area. (Lyon). VIRGINIA - Present in extremely small numbers in all alfalfa checked in several northern counties; beneficials present in most fields. (Tarpley). MARYLAND - Averaged 70-90 per sweep on alfalfa in Dorchester and Talbot Counties; light to April 24 on alfalfa in central and western areas. (U. Md., Ent. Dept.). DELAWARE - Continues to increase on alfalfa; averaged between 1,200-2,000 per 100 sweeps in New Castle and Kent Counties. (Burbutis). NEW JERSEY - Populations very low in alfalfa fields examined; large numbers of predators and parasites present. (Ins.-Dis. Newsltr.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Slight increases found on alfalfa in Yuma, Graham, Maricopa and Pinal Counties. (Ariz. Coop. Sur.). NEW MEXICO - Mostly light in De Baca and Roosevelt County alfalfa; approximately 40 acres of alfalfa treated. (N.M. Coop. Rpt.). OKLAHOMA - Populations continue low in southwest and west central areas; 150-200 per 10 sweeps. (Okla. Coop. Sur.). ARKANSAS - Counts 150-200 per 100 sweeps of 15-inch net in Washington County, northwest area. (Ark. Ins. Sur.). KANSAS - Not found on alfalfa in Ellis County, central area, or in north central and northwest areas. (Harvey, Peters). WISCONSIN - Averaged 5 per stem in observation fields in Brodhead area; fundatrices about half grown. (Wis. Ins. Sur.).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - OHIO - Most abundant leafhopper throughout nortwest area; 35 adults per 25 sweeps in alfalfa near Bowling Green, Wood County. (Treece, Lyon). UTAH - Numerous in alfalfa field at Lehi, Utah County. (Knowlton).

MEADOW SPITTLEBUG (Philaenus spumarius) - OHIO - Several eggs found in Morrow, Ashland and Wayne Counties. First hatch occurred in Delaware County, central area. Nymphs easily observed, with few producing spittle masses on clovers. (Holdsworth, Lyon). MARYLAND - First nymphs of season found April 23 on red clover at Trappe, Talbot County. (U. Md., Ent. Dept.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Slight increases found in alfalfa in Graham, Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - OKLAHOMA - Light, 2-3 per 10 sweeps, in Beckham and Washita Counties. (Okla. Coop. Sur.). NEBRASKA - Adults less than 1 per 10 sweeps in south and southeast areas. (Bergman). DELAWARE - Adults present on alfalfa in New Castle and Kent Counties. (Burbutis). MARYLAND - Adults moderately abundant in red clover and alfalfa on Eastern Shore. (U. Md., Ent. Dept.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Populations increasing rapidly in Yuma, Graham and Maricopa Counties; average per 100 sweeps 70 in Yuma County, 3 in Graham County and 75 in Maricopa County. (Ariz. Coop. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - WISCONSIN - Larvae, about third instar, present in southern area alfalfa. (Wis. Ins. Sur.).

GREEN CLOVERWORM (Plathypena scabra) - ALABAMA - Light infestation along with a few Lygus spp. in crimson clover in western Covington County. (Stephenson).

THRIPS - NEW MEXICO - Generally light in alfalfa checked in Dona Ana, Roosevelt and Quay Counties. Slightly heavier populations noted in several Eddy County fields. (N.M. Coop. Rpt.). ARIZONA - Frankliniella occidentalis light to medium in Yuma County alfalfa; medium to heavy in Graham, Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Light infestations found in almost all wheat checked in De Baca, Curry and Roosevelt Counties. Heavier infestations averaged up to 50 per linear foot in De Baca County, 100+ per linear foot in Curry County and over 200 per linear foot in Roosevelt County. Damage apparent in all of these fields. (N.M. Coop. Rpt.). OKLAHOMA - Activity generally declining with some heavy, localized infestations being treated. Predators and parasites increasing, with heavy populations of lady beetles (adults and larvae) present in some areas. (Okla. Coop. Sur.). KANSAS - Occasional wingless specimen observed in wheat in north central area; only a trace number noted in a few fields. (Peters). MISSOURI - Light on wheat in Barton, Jasper and Newton Counties, southwest; ranged 0-10 and averaged 4.3 per 100 sweeps. (Houser, Thomas, Wood).

ENGLISH GRAIN APHID (Macrosiphum avenae) - KANSAS - Found in almost all wheat fields examined in north central and northwest areas; ranged 10-100 per 100 sweeps, about 25 percent of specimens winged. (Peters). MISSOURI - Light infestations on wheat and oats in southwest; ranged 5-130 per 100 sweeps. (Houser, Thomas, Wood). ARKANSAS - Counts low, 50-100 per 100 sweeps, in small grains in northwest area. (Ark. Ins. Sur.). WISCONSIN - Alates averaged about one per 100 sweeps in rye in western and southwestern areas; embryos fully developed. (Wis. Ins. Sur.).

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Moderate numbers noted in small grain fields in eastern Comanche County; lighter counts present in Caddo and Stephens Counties. (Okla. Coop. Sur.).

FALSE CHINCH BUG (Nysius ericae) - UTAH - Active in northern area alfalfa. (Knowlton).

A PLANT BUG (Irbisia sita) - CALIFORNIA - Light adult populations on barley leaves in Lemoore, Kings County. (Cal. Coop. Rpt.).

A COREID BUG (Harmostes reflexulus) - CALIFORNIA - Medium adult populations occurring on native grasses in Lancaster, Los Angeles County. (Cal. Coop. Rpt.).

BROWN STINK BUG (Euschistus servus) - ALABAMA - Light to medium populations feeding on oats locally in Covington County; averaged about 2 per sweep. (McQueen).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - WISCONSIN - Adults common in rye in western and southwestern counties; range per 100 sweeps -- 8 in La Crosse and Trempealeau Counties to 3 in Green County. (Wis. Ins. Sur.). MINNESOTA - Averaged 2 per 600 sweeps on winter wheat at St. Paul on April 16. Maximum temperature that day was 88° F., with 20 m.p.h. winds. Strong southerly winds had been blowing previous 24 hours. (Minn. Ins. Rpt.).

BROWN WHEAT MITE (Petrobia latens) - NEW MEXICO - Moderate infestations found in all wheat checked between Ragland and Melrose in Quay and Roosevelt Counties. Damage becoming very apparent in fields checked between Clovis and Pleasant Hills in Curry County; populations becoming heavy. (N.M. Coop. Rpt.). OKLAHOMA - Moderate to heavy infestations continue active in Kiowa, Ellis, Washita, Blaine and Kingfisher Counties. Populations should decline since summer eggs are present. (Okla. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Heavy, spotted infestations noted in some Noble County fields. Light to moderate counts also reported from

Kingfisher County. (Okla. Coop. Sur.). MISSOURI - Caused severe damage in small area of field of orchardgrass in Barry County, southwest; damaged area recovering. (Houser, Thomas, Wood).

WHEAT CURL MITE (*Aceria tulipae*) - KANSAS - Light to medium infestations found in nearly all fields examined in central and northwest districts. Scattered mosaic infected plants found in many fields. Heavier infestations in Norton, Thomas, Sheridan, Graham, Logan and Gove Counties, and mosaic abundant enough to cause considerable damage in early planted fields. (Somsen, Sill, Peters).

CEREAL LEAF BEETLE (*Oulema melanopa*) - NEW MEXICO - No evidence of this pest found in survey of wheat fields in Curry County. (N.M. Coop. Rpt.). OHIO - No adults collected to April 22 in northwest area. (Moore).

SOUTHERN CORN ROOTWORM (*Diabrotica undecimpunctata howardi*) - TEXAS - Heavy, local infestations damaging corn in Fayette County. (Anderson).

CORN FLEA BEETLE (*Cnaetocnema pulicaria*) - ALABAMA - Heavy on small roasting ear corn in Lee County. (McGlohon, et al.).

EUROPEAN CHAFER (*Amphimallon majalis*) - NEW YORK - Lawn damage on increase all over Elmira, Chemung County. (N.Y. Wkly. Rpt., Apr. 20).

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - WISCONSIN - Survival of overwintering larvae 83 percent in La Crosse and southern Trempealeau Counties. Considerable feeding by downy woodpecker occurred in latter county in particular. (Wis. Ins. Sur.). DELAWARE - Pupation of overwintering borers averaged 20 percent in Kent County. (Burbutis). MARYLAND - Pupation well underway April 23 on Eastern Shore. (U. Md., Ent. Dept.).

CORN EARWORM (*Heliothis zea*) - FLORIDA - Infesting corn at Homestead, Dade County, on April 20 and lightly to severely damaging localized areas of corn at Plantation, Broward County, on April 14. (Brown, McLean, Clinton). ARKANSAS - Egg deposition increased on crimson clover in Bradley County, south central area. Thirteen moths collected this week in light trap at Hope, southwest area; none taken in trap at Kelso, southeast. (Ark. Ins. Sur.).

FALL ARMYWORM (*Laphygma frugipdera*) - FLORIDA - Lightly to severely damaging localized areas of corn leaves and ears at Plantation, Broward County. (McLean, Clinton; Apr. 14).

BEET ARMYWORM (*Spodoptera exigua*) - FLORIDA - Lightly to severely damaging localized areas of corn at Plantation, Broward County. (McLean, Clinton; Apr. 14).

ARMYWORM (*Pseudaletia unipuncta*) - WISCONSIN - Appearance of moths in light traps has coincided closely last two years, occurring on April 15 and 16 while the first catches during 1962 were on April 21. (Wis. Ins. Sur.).

BLACK CUTWORM (*Agrotis ipsilon*) - WISCONSIN - Adults appeared for first time this season on April 16 in light traps at Madison and Middleton and occurred on that same date in 1963. During 1962, it occurred at these locations on April 26. (Wis. Ins. Sur.).

VARIEGATED CUTWORM (*Peridroma saucia*) - WISCONSIN - Caught on April 17 in light trap during both 1963 and 1964, while it appeared on May 15 in 1962. (Wis. Ins. Sur.).

SAWFLIES (*Dolerus* spp.) - OHIO - Larvae appearing in forage fields throughout State; adults reported abundant few weeks earlier. (Lyon).

SEED-CORN MAGGOT (*Hylemya platura*) - IDAHO - Adults present in fewer numbers than usual in southwestern area. (Scott).

MORMON CRICKET (Anabrus simplex) - UTAH - Hatched in Millard County area south of Kanosh. Scattered specimens along highway in second instar on April 8. (Burnette, Knowlton).

GRASSHOPPERS - CALIFORNIA - Camnula sp. eggs beginning to hatch in lower elevation meadows in the Santa Ysabel area, San Diego County, on April 13. (Cal. Coop. Rpt.). OKLAHOMA - First and second instars of Melanoplus differentialis and M. bivittatus collected in Caddo, Comanche and Stephens Counties. (Okla. Coop. Sur.).

FRUIT INSECTS

SPRING CANKERWORM (Paleacrita vernata) - OKLAHOMA - Defoliating apple trees in Marshall County, south central. (Okla. Coop. Sur.).

PEACH TWIG BORER (Anarsia lineatella) - TEXAS - Damaging peach trees in Midland County. (Green).

CODLING MOTH (Carpocapsa pomonella) - UTAH - Larval survival high under bark of apple trees in Vernal-Maeser area of Uintah County. (Knowlton, Bendixsen). COLORADO - No pupation noted to April 14 in commercial apple orchard in Larimer County. (Kamal).

GREEN FRUITWORM (Lithophane antennata) - OHIO - Females depositing eggs on apple foliage in Cincinnati area April 15. (Rings).

PLUM CURCULIO (Conotrachelus nenuphar) - ALABAMA - Egg laying heavy on plums in Lee County. Numerous adults taken during inspection of trees; very little fruit present, following late freeze. An apparent high overwintering of adults resulting in damage to high percentage of fruit that is present. (McQueen).

APPLE APHID (Aphis pomi) - NEW YORK - Observed on apple April 15 in Orange County, hatch heavy April 16 in Ulster County, and feeding on breaking buds in Columbia County. (N.Y. Wkly. Rpt.; Apr. 20). NEW JERSEY - Noted in several orchards. (Ins.-Dis. Newsltr.).

ROSY APPLE APHID (Anuraphis rosea) - CALIFORNIA - Nymphs heavy on plum and apple in Sanger, Fresno County. (Cal. Coop. Rpt.). NEW JERSEY - Noted in several apple orchards. (Ins.-Dis. Newsltr.). CONNECTICUT - Found in most areas of State. (Savos).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - WISCONSIN - Recently emerged nymphs prevalent on opening leaf buds of early apple varieties at Gays Mills, Crawford County. (Wis. Ins. Sur.). OHIO - Eggs hatched throughout northwest; nymphs collected from apple trees near Toledo, Lucas County. (Lyon).

GREEN PEACH APHID (Myzus persicae) - COLORADO - Development slow on peaches in Mesa County. (Bulla).

PEAR PSYLLA (Psylla pyricola) - NEW YORK - Heavy emergence from hibernation sites occurred April 2 in western area and was completed by April 13. Oviposition started on April 7. (N.Y. Wkly. Rpt.). OHIO - Heavy egg deposit noted on pear tree at Wooster, Wayne County, northeast, April 17. (Forsythe).

EUROPEAN RED MITE (Panonychus ulmi) - OREGON - Widespread in Jackson County pear orchards. Eggs noted hatching April 15. (Berry). OHIO - Hatching occurred at Wooster, Wayne County, northeast, April 17. (Forsythe). DELAWARE - Eggs hatching on apple in early bloom stage in several areas of State. (Kelsey, MacCreary). NEW JERSEY - Overwintering eggs hatching in southern counties as of April 21. (Ins.-Dis. Newsltr.). NEW YORK - Egg numbers not large in Columbia County orchards. Carryover appears generally moderate in Clinton County. (N.Y. Wkly. Rpt., Apr. 20).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - COLORADO - Overwintering forms active on apples in Mesa County. Adults observed on green vegetation of ground cover and on tree trunks. (Bulla).

FALL WEBWORM (Hyphantria cunea) - GEORGIA - Light on pecan in Dougherty County, April 15. This is first report of season. (Tedders).

PECAN NUT CASEBEARER (Acrobasis caryae) - ALABAMA - Overwintering larvae light and feeding on opening buds in one of 3 pecan orchards examined in Lee County. (McQueen).

FOREST TENT CATERPILLAR (Malacosoma disstria) - TEXAS - Damaging pecan trees in Erath and Parker Counties. (Newton).

A LEAF ROLLER MOTH (Archips rosana) - OREGON - Overwintering eggs hatching and injury becoming evident in infested filbert orchards in Willamette Valley. (Jones).

EUROPEAN FRUIT LECANIUM (Lecanium corni complex) - CALIFORNIA - Medium locally on almond trees in Hickman, Stanislaus County. (Cal. Coop. Rpt.).

APHIDS - ALABAMA - Early stages of unspecified species feeding on buds and leaves in 3 pecan orchards examined in Lee County. (McQueen).

PLANT BUGS - ALABAMA - Early stage nymphs heavy on buds in 3 pecan orchards examined in Lee County. (McQueen). GEORGIA - Moderate on pecans in Tift County. (French).

A TREEHOPPER (Cyrtolobus tuberosa) - FLORIDA - Scattered on pecan trees in nursery at Monticello, Jefferson County. (Phillips, Apr. 14).

A SAWFLY (Megaxyla langstoni) - ALABAMA - Few groups of larvae feeding on pecans in Mobile County area. This species was pest of minor importance on pecans in this area and as far north as Lee County in 1963. (Robinson, Seibels).

Citrus Insect Situation in Florida - Mid-April - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 49 percent of groves (norm 57 percent); 28 percent economic (norm 32 percent). Population is below average and at moderate level. Little change expected before mid-May. Highest districts west and north. CITRUS RED MITE (Panonychus citri) infested 60 percent of groves (norm 65 percent); 23 percent economic (norm 39 percent). Population showing strong increase as mites move out on new leaves. This mite expected to be more abundant than in past 3 years. Highest districts north, central and west. TEXAS CITRUS MITE (Eutetranychus banksi) infested 42 percent of groves (norm 23 percent); 19 percent economic (norm 8 percent). This mite more abundant than in April of prior years. Gradual increase expected and scattered groves will have heavy infestations. Highest districts east and central. PURPLE SCALE (Lepidosaphes beckii) infested 84 percent of groves (norm 84 percent); 14 percent economic (norm 18 percent). Highest districts south, east and central. No change expected. GLOVER SCALE (L. gloverii) infested 69 percent of groves (norm 28 percent); 24 percent economic (norm 1 percent). Highest districts south, east and central. No changed expected. CHAFF SCALE (Parlatoria pergandii) infested 83 percent of groves (norm 41 percent); 25 percent economic (norm 1 percent). Highest districts east, central and south. Slight decrease expected. YELLOW SCALE (Aonidiella citrina) infested 51 percent of groves (norm 10 percent),13 percent economic (norm 1 percent). Highest districts central and south. Slight decrease expected. BLACK SCALE (Saissetia oleae) infested 12 percent of groves (norm 15 percent); 5 percent economic (norm 4 percent). All districts in very low range. Gradual increase expected in east and south districts. WHITEFLY population above normal for April. Current high adult population will decline and egg count will be at peak within next 2 weeks. APHID population has peaked and will rapidly decline. Scattered, important infestations will occur in young groves. MEALYBUG population will remain low. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

A SCARAB (Anomala sp.) - TEXAS - Heavy, localized populations severely ragging citrus leaves in Hidalgo County. (Texas Coop. Rpt.; Page).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Increasing on citrus in Yuma and Maricopa Counties. First spray program for control on young terminal growth beginning in Yuma County. (Ariz. Coop. Sur.).

BROWN SOFT SCALE (Coccus hesperidum) - CALIFORNIA - Locally heavy on orange trees in Colusa, Colusa County. (Cal. Coop. Rpt.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - TEXAS - Inspections in Laredo, Webb County, during March negative. Other surveys in Cameron, Hidalgo, Willacy and Zavala Counties also negative. (PPC, So. Reg.). MEXICO - In chemical control zone, total of 119,305 citrus trees on 3,365 properties inspected in Tamaulipas, Nuevo Leon, Sonora and Baja California during March with negative results. (PPC, Mex. Reg.).

MEXICAN FRUIT FLY (Anastrepha ludens) - TEXAS - Trap catches during March were heaviest in several years; 86 specimens taken in Hidalgo, Starr, Dimmit and Webb Counties. Marked sterile flies still being recovered; 39 trapped during March, with one specimen trapped 4 miles from point of release. (PPC, So. Reg.). MEXICO - Total of 1,888 traps on 932 properties inspected 7,368 times during March in States of Baja California and Sonora with negative results. (PPC, Mex. Reg.).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - MEXICO - Total of 3,754 traps inspected 7,378 times in 14 States, Federal District and Territory of Quintana Roo. Trapping operations distributed over Mexico. (PPC, Mex. Reg., Mar. Rpt.).

GRAPEVINE APHID (Aphis illinoisensis) - ALABAMA - Light, early infestations appearing on grapes throughout central area. (McQueen).

GRAPE FLEA BEETLE (Altica chalybea) - ALABAMA - Few larvae feeding on grape leaves in central area; adults continue to feed on fruiting buds. (Barwood, et al.).

TRUCK CROP INSECTS

TOMATO HORNWORM (Protoparce quinquemaculata) - TEXAS - Damaging tomatoes in localized areas of Hidalgo County. (Texas Coop. Rpt.; Meisch).

CUTWORMS - GEORGIA - Unspecified species continue a problem on tomatoes in Griffin area, Spalding County. (Dupree).

COLORADO POTATO BEETLE (Leptinotarsa decemliniata) - VIRGINIA - Adults active on potatoes on Eastern Shore; plants just emerging. (Hofmaster). FLORIDA - Moderate on stems and leaves of tomato at Bereah, Polk County (Snell, Denmark); and at Webster, Sumter County (Bentley, Apr. 15). TEXAS - Light, widespread populations reported on purple nightshade in Blanco County. (Texas Coop. Rpt.; Massey).

POTATO FLEA BEETLE (Epitrix cucumeris) - VIRGINIA - Some light damage noted on Eastern Shore. (Hofmaster).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - FLORIDA - Severe on leaves of eggplant at Belle Glade, Palm Beach County. (Harris, Apr. 7).

A MITE - TEXAS - Heavy, local populations damaging watermelons in Robertson and Washington Counties. Determination pending. (Meisch)

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - This species and Feltia subterranea infested 46 percent of 200 cabbage plants sampled at Sanford, Seminole County; damage ranged light to heavy. (Desin). GEORGIA - Very light on cabbage in Cook County. (Johnson).

DIAMONDBACK MOTH (*Plutella maculipennis*) - ALABAMA - Larvae in considerable numbers noted in field of cabbage in Mobile County. (Bolton, Seibels).

CABBAGE APHID (*Brevicoryne brassicae*) - VIRGINIA - Present on seed kale and collards in Norfolk area. (Hofmaster). FLORIDA - Infested 12 percent of 200 cabbage plants sampled at Sanford, Seminole County; damage light. (Desin).

HARLEQUIN BUG (*Murgantia histrionica*) - ALABAMA - Moderate numbers appearing on cabbage in St. Elmo area, Mobile County. Pest not seen in area for about 2 years. (Seibels, Bolton).

PEA APHID (*Acyrthosiphon pisum*) - DELAWARE - Averaged 2-4 per 10 sweeps on commercial peas throughout Kent and Sussex Counties. (Burbutis).

BEET LEAFHOPPER (*Circulifer tenellus*) - WYOMING - Survey in Washakie County revealed 0.5-4 overwintering adults per square foot of host area. Largest populations found in river-bottom areas on kochia and annual mustards. (Douglass, Marks).

GREEN PEACH APHID (*Myzus persicae*) - VIRGINIA - Light on spinach on Eastern Shore; probably due to large numbers of aphids affected by *Entomophthora* sp. during fall of 1963. (Hofmaster).

THRIPS - NEW MEXICO - Unspecified species extremely light in onion fields checked in Roosevelt County. (N.M. Coop. Rpt.).

ASPARAGUS BEETLE (*Crioceris asparagi*) - ALABAMA - Few adults feeding and laying eggs on isolated asparagus in Lee County home garden. (McQueen).

A WEEVIL (*Hyperodes texana*) - TEXAS - Damaged plants noted in 9 of 10 carrot fields examined in Hidalgo County. Damage ranged light to moderate; however, no larvae found in any field. (Wolfenbarger, Meisch).

STRAWBERRY CROWN MOTH (*Ramosia bibionipennis*) - CALIFORNIA - Larvae medium in raspberry canes in Chicago Park, Nevada County. (Cal. Coop. Rpt.).

A STRAWBERRY LEAF ROLLER (*Olethreutes cespitana*) - DELAWARE - Larvae rolled leaves of strawberry in southwest Sussex County, July 25, 1963. Collected by D. MacCreary at Bethel. Det. by D. Davis. This is a new State record. (Burbutis).

STRAWBERRY WEEVIL (*Anthonomus signatus*) - MARYLAND - Few clipped buds noted on strawberries at Glendale, Prince Georges County. (U. Md., Ent. Dept.).

STRAWBERRY APHIDS - NEW JERSEY - Populations general on strawberry in Hammonton area, Atlantic County. (Ins.-Dis. Newsltr.).

FLEA BEETLES - VIRGINIA - Some slight damage noted on newly set tomato plants on Eastern Shore. (Hofmaster). MARYLAND - *Phyllotreta* sp. adults feeding on young cabbage plants at Queenstown, Queen Annes County. (U. Md., Ent. Dept.). DELAWARE - *Phyllotreta cruciferae* adults averaged 2 per 10 sweeps in commercial field of peas in eastern Kent County. (Burbutis).

TOBACCO INSECTS

TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) - GEORGIA - Light to heavy on tobacco in the field in south central area. (Johnson).

WIREWORMS - GEORGIA - Unspecified species range light to heavy on tocacco in south central area. (Johnson). NORTH CAROLINA - *Conoderus vespertinus* damaged 92 percent of plants examined in 4-acre field in Robeson County. These plants set 3 weeks previous; earlier than others in area. (McIntyre, Mount).

BUDWORMS (Heliothis spp.) - GEORGIA - Light to moderate on tobacco in south central part of State. (Johnson).

GREEN PEACH APHID (Myzus persicae) - GEORGIA - Light on tobacco in the field in southern area. (Johnson).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - ALABAMA - Live adult caught in cotton field in Lee County (Teague) and one live adult taken in Morgan County last of March (Jarrett).

A WEEVIL (Anthonomus grandis thurberiae) - ARIZONA - Few adults found feeding on terminal growth on two-leaf cotton in Pinal County. (Ariz. Coop. Sur.).

COTTON APHID (Aphis gossypii) - GEORGIA - Light to moderate on cotton in south central and southwest areas. (Johnson).

THRIPS - GEORGIA - Light on cotton in south central and southwest areas. (Johnson). ARIZONA - Frankliniella spp. light in cotton fields in Graham, Maricopa and Pinal Counties; heaviest on cotton planted with untreated seed. (Ariz. Coop. Sur.).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Emergence of moths from test cages at Safford, Graham County, continues slow; 8 moths emerged from cages during week. (Ariz. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - ALABAMA - Aerial surveys on Shoal Creek and Talladega districts of National Forests showed decrease in number of infested trees. Surveys in Tuscaloosa and Oakmulgee districts showed slight increase in number of infested trees per thousand acres. Other areas appeared relatively free of activity. GEORGIA - Outbreaks on Chattooga and Tallulah districts of Chattahoochee National Forest continuing at reduced level. Brood production high and serious potential exists. Efforts underway to treat all known infestations before spring emergence. Controls on Oconee National Forest suspended as populations reduced to endemic levels. Statewide survey revealed no activity; however, Ips spp. activity concentrated in few large spots but not considered to be of epidemic proportion. LOUISIANA - Aerial evaluation survey in January showed activity confined largely to loblolly pine-hardwood type in West Bay area of Allen Parish. Several infested trees found southeast of any previously known infestations, indicating slight increase in size of infested area. MISSISSIPPI - Increase in activity on Homochitto National Forest in fall of 1963 largely confined to trees previously attacked by Ips spp. Increasing number of primary attacks by D. frontalis observed this spring. Light infestations found on trees previously attacked by Ips spp. in northwest Copiah County in February. NORTH CAROLINA - D. frontalis active in several upper Piedmont counties. Activity increased since last fall in Davidson County; organized salvage and controls being continued in area. Few small, but vigorous spots present in Tusquittee district of National Forests. Broods appear to have survived winter and present potential threat for coming season. SOUTH CAROLINA - Populations in upper Piedmont districts of National Forests decreased below point where economic control feasable. Most serious activity on Francis Marion National Forest. Estimated 4,000 trees present in 2-square-mile area on Wambaw district in Charleston County. Spots currently restricted to low lying bays on Wambaw and Witherbee districts. TEXAS - Populations in southeast apparently at lowest level in several years. Cooperative aerial surveys show number of infested trees per thousand acres has declined. Scattered activity observed and reported from ground operations; 7 spots located in Tyler County contain total of 34 trees. All infestations controlled. Activity continues at low level on Big Thicket district of Sam Houston National Forest. (South. For. Pest Rpt., April).

BLACK TURPENTINE BEETLE (*Dendroctonus terebrans*) - ARKANSAS - Activity of this species and *Ips* spp. about normal; no epidemic situation occurring. Rainfall and vigorous tree growth will have great influence on infestations throughout next few months. Potential for serious infestations and widespread damage present. Plans for effective salvage operations should be made so that action can be rapid if outbreak occurs in any locality. Most effective and practical control depends upon reducing source of infestation through good salvage operations. (Ark. For. Pest Rpt., April). ALABAMA - Winter mortality observed in many spots during January on Shoal Creek and Talladega Ranger districts in Cleburne, Calhoun, Clay and Talladega Counties. LOUISIANA - Increased activity reported on Vernon district of Kisatchie National Forest. Attacks found on low site not logged for several years. TENNESSEE - Responsible for scattered mortality of residual trees on recent timber sales on Cherokee National Forest. TEXAS - Heavy damage reported from southern Houston County on area of approximately 500 acres. Areas logged during last few months contained heaviest concentration of attacks. Control action initiated. (South. For. Pest Rpt., April).

ENGRAVER BEETLES (*Ips* spp.) - ALABAMA - Activity, as determined by aerial surveys in January over National Forest land in Cleburne, Calhoun, Clay, Talladega, Winston, Franklin and Lawrence Counties, killed approximately 8 trees per 1,000 acres; an 8-fold increase since September 1963. ARKANSAS - *Ips* spp., particularly *I. avulsus*, reached epidemic proportions in pine-production areas of State last fall. Due to higher than normal population levels, trees already weakened by beetle attack, drought conditions and burns, potential for outbreak situation this spring is great. Hazard condition not uniform over State but includes forests in all pine-production areas; namely, Ashley, Drew, Union, Scott, Stone, Cleveland, Dallas, Yell, Montgomery, and other counties. If moisture conditions continue below normal, new surge of activity can be expected in May. MISSISSIPPI - Activity on Homochitto National Forest declined due to improved moisture conditions. NORTH CAROLINA - Spots of up to 15 trees infested with *I. avulsus* observed in Morrow Mountain State Park. SOUTH CAROLINA - On upper Piedmont districts of National Forests, *Ips* spp. replacing *Dendroctonus frontalis* as primary causal agent of tree mortality. TENNESSEE - *I. pini* found infesting white pine in Tellico Plains area of this State, and in vicinities of Hot Springs and Asheville, NORTH CAROLINA. (South. For. Pest Rpt., April).

PALES WEEVIL (*Hylobius pales*) - ARKANSAS - Weevil activity increasing; collections from beetle traps show this species predominant. NORTH CAROLINA - First emergence of this species and *Pachylobius picivorus* occurred March 5 in eastern part of State. Recent evaluation of newly established plantation in eastern area of State showed number of injured seedlings ranged 4-8 percent on sites cleared in October 1963 and planted in January and February 1964; injury confined to sites previously supporting pine stands. (South. For. Pest Rpt., April).

LARCH CASEBEARER (*Coleophora laricella*) - WISCONSIN - Larvae feeding heavily upon needles of European larch at a Grant County location. (Wis. Ins. Sur.).

PINE NEEDLE MINER (*Exoteleia pinifoliella*) - DELAWARE - Nearly full-grown larvae common on Virginia pine in area of Kent County. (Burbutis).

BAGWORM (*Thyridopteryx ephemeraeformis*) - NORTH CAROLINA - Caused heavy defoliation of 5-acre white pine plantation in Buncombe County. (South. For. Pest Rpt., April).

PHYCITID MOTHS (*Dioryctria* spp.) - SOUTH CAROLINA - *D. calrioralis* responsible for loss of approximately 50 percent of longleaf pine cone crop on 55-acre seed production area on Francis Marion National Forest. (South. For. Pest Rpt., April). CALIFORNIA - *Dioryctria* sp. heavy on Monterey pine in Atherton, San Mateo County. (Cal. Coop. Rpt.).

NANTUCKET PINE TIP MOTH (*Rhyacionia frustrana*) - ARKANSAS - Emergence complete in southern area. Emergence was retarded by weather conditions until about March 22; by March 24, following few days of warm weather, majority of overwintering pupae emerged as adults. Development of new pine growth has been slow, thus first-generation larvae will have limited new growth on which to feed. Therefore, degree of damage to current year's growth may be greater than in normal years when new growth rapid and vigorous. (Ark. For. Pest Rpt., April).

CONIFER APHIDS - OREGON - *Cinara fornacula* attacking Norway spruce in a Multnomah County nursery. *Schizolachnus pineti* (tentative determination) present in large numbers on Mugho pine in nursery in same county. (Larson). COLORADO - Colonies of *Pineus strobi* present on limber pine and causing damage. Det. by T. O. Thatcher. (Simpson). WISCONSIN - *Cinara* sp. eggs hatched recently on red pine near Mazomanie, Dane County. (Wis. Ins. Sur.). DELAWARE - *Cinara* sp. apterous forms common on Virginia pine needles in an area of western Kent County. (Burbutis). NEW JERSEY - *Pineus strobi* eggs hatching on pines. (Ins.-Dis. Newsltr.).

PINE NEEDLE SCALE (*Phenacaspis pinifoliae*) - OHIO - Moderate to heavy on Colorado blue spruce at a Summit County nursery, northeast. (Kelly).

CONIFER SAWFLIES (*Neodiprion* spp.) - OHIO - *N. sertifer* eggs hatched near Lisbon, Columbiana County, northeast. (Neiswander). ARKANSAS - Egg hatch of *N. taedae linearis* observed March 13 south of Hampton, Calhoun County, and few miles further north in same county March 19. Field observations March 24 showed hatching 75-90 percent complete in southern half of Calhoun County. All larvae observed were first stage. This year's hatch indicates possibly heaviest infestation since bad years of 1946 and 1947. Egg deposits made in needles as much as two feet from limb tips. Defoliation may be heavy in local areas. Not only mature timber infested, but some artificial, even-age stands just reaching pulpwood size heavily infested. Foresters noting infestations on company holdings asked to plot affected areas, denoting varying degrees of severity. Efforts being made to obtain aerial survey of infested forest in order to define involved areas and severity of defoliation. Small scale experimental control tests underway to determine possible control techniques if needed. (Ark. For. Pest Rpt., April).

EASTERN TENT CATERPILLAR (*Malacosoma americanum*) - CONNECTICUT - Hatching April 17 at East Hampton. (Gaines). Additional hatching observed in Guilford, Rocky Hill, Bristol, Canton and around New Haven. Considerable webbing found April 20 at Rocky Hill. Hatching probable in all but normally cooler parts of State. (Savos). DELAWARE - Tents noticeable on wild cherry throughout State. (Burbutis). MARYLAND - Numerous tents noted in wild cherry trees on farms and along highways in Anne Arundel, Queen Annes and Talbot Counties. (U. Md., Ent. Dept.). VIRGINIA - Tents conspicuous on wild cherry in Pittsylvania and Charlotte Counties. (Dominick). Tents becoming conspicuous in Craig, Alleghany, Bath, Augusta, Rockingham, Shenandoah, Frederick, Warren, Fauquier, Culpeper, Madison, Greene, Albemarle, Rockbridge and Botetourt Counties. (Tarpley). ALABAMA - Approximately half-grown larvae feeding on cherry and peach in Perry County. As many as 4 tents noted in one peach tree. (Cain). MISSOURI - Early larval stages noted on wild cherry in Barry, McDonald and Jasper Counties, southwest; noted on a peach tree in Jasper County. (Houser, Thomas, Wood). OHIO - Larvae noted on chokecherry in Cincinnati, Hamilton County, southwest, April 13. (Rings). WISCONSIN - Eggs hatched by April 23 in Rock County, compared with April 16 in 1963 and April 26 in 1962. Feeding occurring on unopened buds and some webbing noted. (Wis. Ins. Sur.).

SPRING CANKERWORM (*Paleacrita vernata*) - OKLAHOMA - Feeding on elm foliage in north central area. (Okla. Coop. Sur.). NEBRASKA - Total of 99 taken in light trap at North Platte, April 1-8, with 75 taken April 2. Total of 64 taken at same location April 9-17, with 50 taken April 11. (Pruess). NORTH DAKOTA - Emergence of females and males continues in southeast, but slow due to generally cool temperatures. (N.D. Ins. Sur.).

ELM SPANWORM (*Ennomos subsignarius*) - Egg mass surveys indicate low population in north GEORGIA and western NORTH CAROLINA; only light to moderate defoliation expected. (South. For. Pest Rpt., April).

MOURNING-CLOAK BUTTERFLY (*Nymphalis antiopa*) - CALIFORNIA - Eggs and larvae heavy on willows in Santa Barbara, Santa Barbara County. (Cal. Coop. Rpt.).

ELM LEAF BEETLE (*Galerucella xanthomelaena*) - ARKANSAS - Adults very active in northwest area; appears to be above normal. (Ark. Ins. Sur.). OKLAHOMA - Egg laying underway in Stillwater area, Payne County. (Okla. Coop. Sur.). IDAHO - Active, overwintering adults observed for first time this season at Parma, Canyon County. (Scott).

ORANGE TORTRIX (*Argyrotaenia citrana*) - CALIFORNIA - Larvae medium on azalea plants in Modesto, Stanislaus County. (Cal. Coop. Rpt.).

YELLOW-STRIPED ARMYWORM (*Prodenia ornithogalli*) - FLORIDA - Severe on *Jasminum* sp. at Ft. Lauderdale, Broward County, April 16. (Clinton).

APHIDS - CALIFORNIA - *Amphorophora nervata* heavy on *Arubtus unedo* in Redwood City, San Mateo County. (Cal. Coop. Rpt.). ARIZONA - Medium aphid populations occurring on rose bushes in Graham, Maricopa and Pinal Counties. (Ariz. Coop. Sur.). NEW MEXICO - Probably *Amphorophora nervata*, light to moderately heavy on roses in Las Cruces area, Dona Ana County. (N.M. Coop. Rpt.). COLORADO - Aphid eggs fewer in numbers but well distributed on chokecherry, buckthorn and plum; no evidence of hatching. (Simpson). OKLAHOMA - Several species continue to buildup on variety of ornamentals throughout State. (Okla. Coop. Sur.). ALABAMA - *Macrosiphum rosae* continues to increase on roses in Lee, Dallas and other central counties. (Granberry et al.). FLORIDA - *Acyrthosiphon porosum* infesting stem, bloom and leaves of rose at Gainesville, Alachua County, April 16. (Martinez). GEORGIA - Unspecified species moderate on new growth of rose in Columbus area, Muscogee County (Greene, Apr. 15); infesting same host in Griffin area, Spalding County (Beckham). NORTH CAROLINA - *Longistigma caryae* infesting ornamental water oak at a Union County location. (Mangum, Mount). WISCONSIN - *Anuraphis viburniphila* eggs hatched April 17 at Middleton, Dane County; this is 5 days later than in 1963. (Wis. Ins. Sur.).

COCCIDS - MARYLAND - *Aspidiotus juglansregiae* infesting hemlock hedge at Queenstown, Queen Annes County. *Pseudaulacaspis pentagona* infesting *Prunus* sp. at College Park, Prince Georges County. (U. Md., Ent. Dept.). VIRGINIA - *Ceroplastes ceriferus* (?) continued to spread and is now major problem on ornamentals on Eastern Shore. (Hofmaster). FLORIDA - *Phenacaspis cockerelli* moderate on leaves of *Strelitzia* sp. at Merritt Island, Brevard County. (Levan, Apr. 14). *Fiorinia theae* severe on leaves of holly at Palmetto, Manatee County, April 15. Control recommended. (Bickner). TEXAS - *Pseudaulacaspis pentagona* damaging mulberry trees in Brazos County. (Randolph). COLORADO - *Chionaspis furfura* heavy on willow in Denver. (Kamal). ARIZONA - Light numbers of *Pseudococcus* sp. damaging some nursery stock in Casa Grande, Pinal County. (Ariz. Coop. Sur.). CALIFORNIA - *Lecanium persicae* light on *Sarcococca* sp. nursery stock in San Jose, Santa Clara County. *Pseudococcus aurilanatus* heavy on *Araucaria bidwillii* in Woodside, San Mateo County. *Pseudococcus obscurus* nymphs and adults ranged light to heavy on *Cattleya* sp. and *Epiphyllum* sp. in San Carlos, San Mateo County, and medium on gardenia in Oroville, Butte County. (Cal. Coop. Rpt.). OREGON - *Lepidosaphes ulmi* infesting boxwood in Multnomah County. Eggs not hatching. *Aspidiotus excisus* heavy on imported variegated Chinese evergreen in Multnomah County greenhouse. (Nicolaison).

AZALEA LACE BUG (*Stephanitis pyrioides*) - GEORGIA - Moderate on azalea in Griffin area, Spalding County. (Beckham).

CUBAN-LAUREL THRIPS (*Gynaikothrips ficorum*) - FLORIDA - Severe on *Ficus retusa* at west Bradenton, Manatee County, April 16. (Bickner).

THRIPS - CALIFORNIA - *Isoneurothrips australis* and *Thrips madronii* light on flowers of *Ceanothus prostratus* in the City College grounds in San Francisco, San Francisco County. *Frankliniella occidentalis* medium on mustard flowers in Colusa County, and on *Mesembryanthemum* sp. in San Francisco, San Francisco County. (Cal. Coop. Rpt.). FLORIDA - *Frankliniella bispinosa* severe on blooms of azalea and *Heliothrips haemorrhoidalis* severe on leaves of croton at Fairvilla, Orange County, April 3. (Griffith).

WHITEFLIES - ALABAMA - Adults and immature stages becoming numerous and damaging foundation plantings around some Dallas County homes. (McQueen).

BOXWOOD LEAF MINER (*Monarthropalpus buxi*) - MARYLAND - Pupation noted April 23 in American boxwood at Queenstown, Queen Annes County. (U. Md., Ent. Dept.).

SPRINGTAILS - CALIFORNIA - *Onychiurus fimetarius* and *Lepidocyrtus cyaneus* nymphs and adults medium on cattleya orchids in Golden Gate Park, San Francisco, San Francisco County, and light to medium on orchid roots locally in Woodside, San Mateo County. *Entomobrya nivalis* adults light on flowers of *Ceanothus prostratus* in San Francisco. (Cal. Coop. Rpt.).

SPIDER MITES - CALIFORNIA - *Eotetranychus malvastris* heavy on false mallow (*Malacothamnus fasciculatus*) in Botanical Gardens at Claremont, Los Angeles County. (Cal. Coop. Rpt.). FLORIDA - *Tetranychus telarius* severe on leaves of chrysanthemum at Orlando, Orange County, April 6. (Griffith).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - COLORADO - Adults, probably *Aedes dorsalis*, active in Larimer County. Two reports indicating moderate numbers. This species overwinters in storm sewers in Fort Collins area. (Daniels). NORTH DAKOTA - No snow pool species observed (Noetzel); *Culiseta inornata* emerged from overwintering locations in southeast (N.D. Ins. Sur.). MINNESOTA - Early spring *Aedes*, viz., *A. spencerii*, *A. implicatus*, *A. stimulans* and *A. excrucians*, present as third and fourth instars. *A. cinereus* and *A. fitchii* are in second and third instars. Spring rains resulted in an additional hatch of mosquitoes, partly *A. vexans*. (Minn. Ins. Rpt.). IOWA - Several specimens of *C. inornata* collected at Ames April 10-11. (Iowa Ins. Inf.). OHIO - First, second and third-stage larvae of *A. stimulans* collected in flood water at Swan Creek near Toledo, Lucas County. (Brockway). MARYLAND - Adults of *A. cantator* and *A. canadensis* continue to emerge in southern tidewater sections; no *A. sollicitans* noted on April 22. (U. Md., Ent. Dept.). FLORIDA - *Anopheles crucians* larvae collected at 2 locations in Gainesville, Alachua County, on april 15. (Hazard).

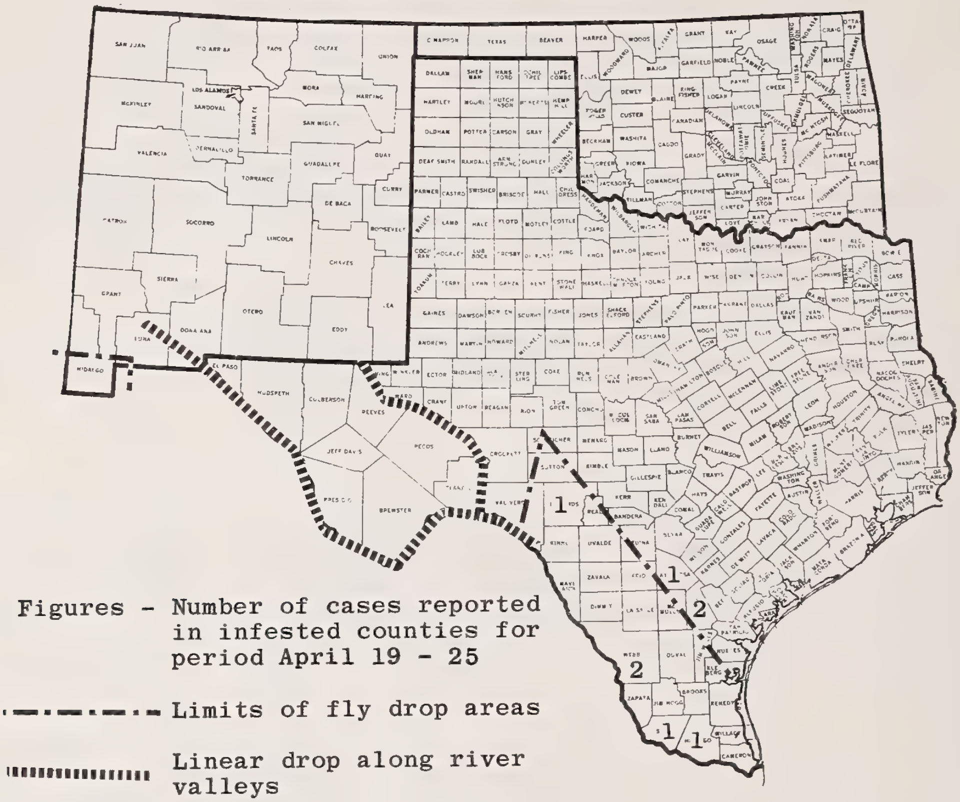
FACE FLY (*Musca autumnalis*) - MASSACHUSETTS - Emerged from hibernation; observed in warm, sunny places on fences and other objects. (Wave). VIRGINIA - Counts per beef animal 8 in Fauquier County, 1 in Warren County, 5 in Madison County and 2 in Augusta County. (Tarpley). VERMONT - Observed on cattle. (MacCollom). OHIO - Light populations observed on beef cattle at Wooster, Wayne County. (Miller). NORTH DAKOTA - Abundant in homes this past winter, particularly in southeast area. Single reports came from as far west as Carrington and as far north as Park River. (Noetzel).

HORN FLY (*Haematobia irritans*) - GEORGIA - Averaged 46 per animal on 114 head of Hereford beef animals examined in Putnam County. (Roberts, Apr. 4). OKLAHOMA - Populations continue low; counts of 10 per head noted on cattle in Pushmataha, McCurtain and Le Flore Counties. Increased in Noble County; 200 per head noted. (Okla. Coop. Sur.). MISSOURI - Light infestations on cattle in Barry and McDonald Counties, southwest. (Houser, Thomas, Wood).

SHEEP KED (*Melophagus ovinus*) - OHIO - Heavy infestations observed on ewes in Guernsey County, east central area. Keds averaged 50 per ewe in flock of 60 sheep. Both adults and puparia observed. (Galford). NEBRASKA - Light populations occur in small flocks. Keds may buildup in lambs with shorn ewes. (Bergman).

STATUS OF THE SCREW-WORM (*Cochliomyia hominivorax*) IN THE SOUTHWEST

During the period April 19 - 25, a total of 8 screw-worm cases was reported from TEXAS. During this same period in 1963, Texas reported 80 cases and New Mexico 15 cases. A total of 96,260,250 sterile screw-worm flies was released during this period: 21,596,250 in Texas; 384,000 in New Mexico; and 74,280,000 in the Republic of Mexico. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period April 19 - 25

—·—·—·— Limits of fly drop areas

▮▮▮▮▮▮▮▮ Linear drop along river valleys

CATTLE GRUBS (*Hypoderma* spp.) - NORTH DAKOTA - An average of 85 percent of animals infested in southwest; number per animal averaged 12. (Noetzel). MICHIGAN - Counts as high as 37 per steer (average 8 per animal) on yearlings from northern Michigan now in Lenawee County. (Stroud). OKLAHOMA - Considerable *H. lineatum* adult activity continuing around State. (Okla. Coop. Sur.). DELAWARE - Adults of *H. lineatum* flying on April 17; *H. bovis* larvae all dropped to ground by April 23. (Catts).

CATTLE BITING LOUSE (*Bovicola bovis*) - ALABAMA - Rather heavy on herd of cattle in Houston County. (Granberry).

HOG LOUSE (*Haematopinus suis*) - UTAH - Infesting some swine at Ogden, Weber County. (Knowlton).

TICKS - TEXAS - Following species found on 510 cattle and one horse on 43 premises within State during March: *Amblyomma americanum*, 24 lots; *Dermacentor nigrolineatus*, 2 lots; *D. variabilis*, 2 lots; *Ixodes scapularis*, 1 lot; *Otobius megnini*, 16 lots; *D. nitens*, 1 lot; and *Boophilus annulatus*, 2 lots. Latter two species obtained from animals within Fever Tick Buffer Zone. (Anim. Dis. Erad. Div., Anim. Insp. & Quar. Div.). OKLAHOMA - *A. americanum* counts light; ranged 5-12 per head on cattle in Pushmataha, McCurtain and Le Flore Counties. *Rhipicephalus sanguineus* becoming active in Stillwater area. (Okla. Coop. Sur.).

MINNESOTA - *Dermacentor variabilis* reported active in a wooded area north of Minneapolis-St. Paul area. (Minn. Ins. Rpt.). MARYLAND - Adults of *D. variabilis* appeared week of April 18 at several locations over State. (U. Md., Ent. Dept.).

HOUSEHOLD AND STRUCTURAL INSECTS

SUBTERRANEAN TERMITES (*Reticulitermes* spp.) - NEW JERSEY - Swarms causing bulk of household pest inquiries. (Ins.-Dis. Newsltr.). MARYLAND - Winged forms received from several localities in Prince Georges County and Baltimore. (U. Md., Ent. Dept.). NORTH CAROLINA - *R. flavipes* swarming in large numbers in a Davidson County home during first half of April. (Wray). ALABAMA - Numerous swarms of *R. flavipes* continue to be reported from central areas. Swarming appears to be heavier than in 1963. (Baker et al.). FLORIDA - *R. virginicus* swarmed heavily at Tampa, Hillsborough County, on April 9. (Gresham). OKLAHOMA - *Reticulitermes* sp. swarming in Stillwater area. (Okla. Coop. Sur.).

BLACK CARPENTER ANT (*Camponotus pennsylvanicus*) - WISCONSIN - Winged forms noted at Oconomowoc, Waukesha County, April 18. (Wis. Ins. Sur.).

CARPENTER BEES - NEW JERSEY - Causing some concern to homeowners. (Ins.-Dis. Newsltr.).

WASPS (*Polistes* spp.) - MARYLAND - Several reports received of active wasps seeking nesting sites around buildings in Prince Georges County. (U. Md., Ent. Dept.).

BLACK CARPET BEETLE (*Attagenus piceus*) - OHIO - Annoying to homeowners throughout State. Adults most commonly reported. (Delaplane). COLORADO - Causing damage and requiring control measures locally in Fort Collins and Denver. (Thatcher).

CLOVER MITE (*Bryobia praetiosa*) - MARYLAND - Continues to annoy homeowners at several localities in Prince Georges County. (U. Md., Ent. Dept.). NEW YORK - Causing considerable complaints on buildings as overwintering adults become active. (N.Y. Wkly. Rpt., Apr. 20). VERMONT - Annoying homeowners. (MacCollom). MICHIGAN - Reports of annoyance to homeowners numerous. A mild, dry winter considered partially responsible. (Janes). WISCONSIN - Migrations into houses heavy in area of Dane County. (Wis. Ins. Sur.). NEBRASKA - Numerous reports received of activity in residential homes in southeast areas. (Bergman). UTAH - Entering homes in Utah and Weber Counties. (Knowlton).

BOXELDER BUG (*Leptocoris trivittatus*) - VIRGINIA - Unusually numerous this spring on Eastern Shore. (Hofmaster). MICHIGAN - Unusually high spring population of adults and nymphs evident. (Janes).

A FALSE CHINCH BUG (*Nysius* sp.) - TEXAS - Heavy, widespread infestations causing annoyance by entering homes in Hidalgo County. (Texas Coop. Rpt.; Bente).

STORED-PRODUCT INSECTS

INDIAN-MEAL MOTH (*Plodia interpunctella*) - FLORIDA - Severely damaged stored field corn at Belle Glade, Palm Beach County, April 7. (Harris).

BENEFICIAL INSECTS

LADY BEETLES - ARIZONA - *Hippodamia convergens* increasing rapidly in alfalfa in Maricopa, Pinal and Yuma Counties. (Ariz. Coop. Sur.). UTAH - Unspecified species occasionally noted in central area orchards and alfalfa. (Knowlton). WYOMING - Adults of several species appearing in alfalfa in Washakie and Hot Springs Counties. (Marks). TEXAS - Populations of unspecified species increasing on small grains in panhandle area. (Daniels). KANSAS - Small numbers of *Hippodamia* *convergens* noted in alfalfa and wheat in north central and northwest areas. (Peters). MISSOURI - *Coccinella novemnotata* and *H. convergens* adults active in southwest. (Houser, Thomas, Wood). MICHIGAN - Adults of *Coleomegilla maculata lengi* numerous in wooded areas near Galien, Berrien County; species predatory on eggs of cereal leaf beetle (*Oulema melanopa*). (Hayward). NEW JERSEY - Large numbers of lady beetles present in alfalfa. (Ins.-Dis. Newsltr.).

LACEWINGS - MISSOURI - *Chrysopa* spp. adults noted in small grain and alfalfa in southwest. (Houser, Thomas, Wood). KANSAS - Small numbers of unspecified species observed in alfalfa and wheat in north central and northwest areas. (Peters).

DAMSEL BUGS (*Nabis* spp.) - KANSAS - Small numbers noted in alfalfa and wheat in north central and northwest areas. (Peters). ARKANSAS - Ranged 8-10 per 100 sweeps in Washington County alfalfa. (Ark. Ins. Sur.).

A FLOWER BUG (*Orius insidiosus*) - KANSAS - Small numbers noted in alfalfa and wheat in north central and northwest. (Peters).

A PREDACEOUS STINK BUG (*Stiretrus fimbriatus*) - MISSOURI - Feeding on larvae of eastern tent caterpillar in McDonald County, southwest. (Houser, Thomas, Wood).

SYRPHID FLIES - ARKANSAS - Adults very active in alfalfa in Washington County, northwest; 35-40 per 100 sweeps. (Ark. Ins. Sur.).

HYMENOPTEROUS PARASITES - ARKANSAS - Very numerous in Washington County alfalfa. (Ark. Ins. Sur.).

MISCELLANEOUS INSECTS

TEPHRITID FLIES (*Aciurina* spp.) - CALIFORNIA - *A. maculata* and *A. trixa* larvae medium in stem galls of rabbitbrush in Floristan area of Sierra County, and *A. maculata* light in Vinton, Plumas County. (Cal. Coop. Rpt.).

ANTS - NEBRASKA - Mound building activity increasing in lawns in Lincoln, Lancaster County. (Bergman). TEXAS - *Atta texana* swarming in Guadalupe County. (Texas Coop. Rpt.; Massey).

WHITE-FRINGED BEETLES (*Graphognathus* spp.) - SOUTH CAROLINA - Collected for first time in Marlboro County. MISSISSIPPI - Found in Carroll and Yazoo Counties; first records for these counties. (PPC, So. Reg., Mar. Rpt.).

SLUGS - OREGON - Overwintering *Deroceras reticulatum* adults depositing eggs. Juveniles of *D. reticulatum* and young of *Arion ater* and *Prophysaon andersoni* abundant but activity and feeding damage retarded by cold weather. (Crowell).

Sticky-board Traps in Arizona - Average counts per board in Yuma County, April 6 and 13, respectively, as follows: Green peach aphid (*Myzus persicae*) 29.17 and 51.75; melon aphid (*Aphis gossypii*) 189.74 and 168.67; and beet leafhopper (*Circulifer tenellus*) 52.58 and 15.41. (Ariz. Coop. Sur.).

ADDITIONAL NOTES

MICHIGAN - CEREAL LEAF BEETLE (*Oulema melanopa*) - First general adult activity of season occurred on April 10 when 78° F. temperature recorded at grass level near Galien, Berrien County. Adults ranged 1-7 per 20 sweeps in grassy areas. (Ruppel).

CORRECTIONS

CEIR 14(15):323 and 14(17):393 - Credit to preparation of the highlight section of "Forest Insect Conditions in the United States - 1963" should be Insect and Disease Surveys, Forest Pest Control, State and Private Forestry, Forest Service, U.S. Department of Agriculture.

LIGHT TRAP COLLECTIONS

	Temperature °F	Precipitation	Type of trap *	*Agrotis ipsilon* (black cutworm)	*Carpocapsa pomonella* (codling moth)	*Chorizagrotis auxiliaris* (army cutworm)	*Estigmene acrea* (salt-marsh caterpillar)	*Faronta diffusa* (wheat head armyworm)	*Feltia subterranea* (granulate cutworm)	*Heliothis virescens* (tobacco budworm)	*Heliothis zea* (bollworm, corn earworm)	*Laphygma frugiperda* (fall armyworm)	*Loxostege commixtalis* (alfalfa webworm)	*Loxostege similalis* (garden webworm)	*Loxostege sticticalis* (beet webworm)	*Ostrinia nubilalis* (European corn borer)	*Peridroma saucia* (variegated cutworm)	*Prodenia ornithogalli* (yellow-striped armyworm)	*Protoparce quinquemaculata* (tomato hornworm)	*Protoparce sexta* (tobacco hornworm)	*Pseudaletia unipuncta* (armyworm)	*Spodoptera exigua* (beet armyworm)	*Trichoplusia ni* (cabbage looper)	Major crop **
CALIFORNIA																								
Davis 4/18-24			BL	2					2								12				31			Misc.
FLORIDA																								
Gainesville 4/22			BL														2	1		1				
GEORGIA																								
Tifton 4/9-15			BL							0	3								0	0				
Tifton 4/16-22			BL							0	2								0	0				
ILLINOIS (County)																								
Champaign 4/17-23	43-67	4.06"	BL	3													8				38			
KANSAS																								
Garden City 4/15, 18,26				1		1		2									3	1						
Hays 4/16, 21				1				1																
Manhattan 4/17-23				5				2									3	2			2			
Mound Valley 4/15, 18-20				25				1									18				108			
Wathena 4/14-15, 18-19				6				2									4				7			
MISSISSIPPI																								
Stoneville 4/18-24	61-84	1.47"	MV	15			8										66	6			90			
Stoneville 4/18-24	61-84	1.47"	BL	19			4										51	5			77			
MISSOURI																								
Portageville 4/1-15																	3	1			11			
NEBRASKA																								
North Platte 4/9-18				9													10							
TENNESSEE (Counties)																								
Maury 4/14-20				2													8				54			
Robertson 4/14-20				1													2				7			
Cumberland 4/14-20				6													8	1			8			
Greene 4/14-20				5													5	2			16			
Blount 4/14-20				6													6				12			
Johnson 4/14-20				2													2	1						
TEXAS																								
Brownsville 4/16-22			6 BL	26			20		1497	793	2	27		911			11	25	19	16	1		596	
Waco 4/18-24			BL	59			3		88	0	12	0					66	20			123	7	8	
WISCONSIN																								
Middleton 4/17-23	38-77		BL	1													1				5			
Madison 4/17-23			BL	1													6				35			
SOUTH CAROLINA																								
Charleston 4/20-26	54-88	0.50"	BL	10			0		3	0	2	0					3	0	0	0	6		2	

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

HAWAIIAN INSECT NOTES

The following notes on Hawaii insect conditions were presented at the 699th meeting of the Hawaiian Entomological Society held March 9, 1964.

CUBAN-LAUREL THRIPS (*Gynaikothrips ficorum* (Marchal)) a newly established immigrant species, *was found infesting* Chinese banyan trees (*Ficus retusa*) at the Honolulu zoo in Kapiolani Park area and at the abandoned *Coast and Geodetic* Survey Station at Barbers Point during the first week of March. These records considerably extend the known range of this thrips on Oahu. (J. W. Beardsley). Dense populations were recently observed on *Ficus benjamina*. On February 7, 1964, it was observed on *Ficus retusa* in the Nuuanu *Tunnel area*. This is the first report of the pest *on the windward* side of Oahu. (J. Kim).

A PARASITIC TACHINA FLY (*Trichopoda pennipes* (F.)) - During January and February, numerous adults and full-*grown nymphs of a* scutellarid bug (*Coleotichus blackburniae* White) were collected at the State Park site on Roundtop on *Acacia formosana*. Several adults and a few nymphs bore eggs of *T. pennipes, and two adult flies* were subsequently reared from full-grown maggots *which issued* from *C. blackburniae* (koa bug). *T. pennipes* had previously been reared from *C. blackburniae in laboratory experiments, and* adult bugs with parasite eggs *attached have been* collected in the field; however, this is the first record of field parasitized bugs yielding adult flies. (J. W. Beardsley). On March 2, 1964, a male *T. pennipes* emerged from a pupa which had been recovered from *C. blackburniae* *collected on Tantalus*. This was followed by the emergence of a *female T. pennipes* from a pupa recovered from southern green stink bug (*Nezara viridula* (L.)) collected at Koko Head. This is the first recovery *of this tachina* fly since its release at Ewa on November 19, 1963. (C. J. Davis).

BARNACLE SCALE (*Ceroplastes cirripediformis* Comstock) was collected on Molokai during December *1963 by Dr. Beardsley and* on Maui on passion fruit in February 1964 by Dr. Nishida. These constitute new island records for this species. (J. W. Beardsley).

AGROMYZID FLIES - Twenty-eight males and 27 females of *Phytobia maculosa* (Malloch) were reared from larvae on *Erechtites valerianaefolia* *at Hilo, Kolekole Park*, National Park (Volcano, *Hawaii) and Tantalus, Oahu,* during October and November 1962. One male and one female from *Emilia sonchifolia* at Hilo, Hawaii. Seven males and 21 females of *Pseudonapomyza spicata* (*Malloch*) from *Stenotaphrum secundatum* at MacKenzie *State Park, Hawaii, during October 1962. These are* all *new hosts* and determinations were made by Miss M. Neal of the Bishop Museum. (D. E. Hardy).

AN APHID (*Thoracaphis fici* (Takahashi)) was observed as heavy on a large banyan tree (*Ficus benghalensis*). Further investigation showed that the aphid and the sooty *mold which covered* a large portion of the tree were responsible for the poor growth condition. (J. Kim).

A STINK BUG (*Brochymena quadripustulata* (F.)) - Three live adults were collected among boards *and packing material in a* shed on the Masao Kaneshiro farm, Lualualei Valley, on February 13, 1964. This is the original site of infestation noted in October 1962. The adults would not feed in the laboratory on immature stink bugs, dipterous or lepidopterous larvae, but did feed on fresh string beans. (W. C. Mitchell).

GREENHOUSE WHITEFLY (*Trialeurodes vaporariorum* (Westwood)) - Farmers are experiencing difficulty *with high populations* on *pole* beans in the Waianae and Kahuku areas. (W. C. Mitchell).

Various stages of a phytophagus THRIPS (*Parthenothrips draecaenae* (Heeger)) were found to be heavy on foliage of croton (*Codiaeum variegatum*) *at Hana*, Maui, on February 26 by Dr. T. Nishida and Mr. *F. Maramoto. Det.* by Mr. K. Sakimura. This constitutes a first record for the island and on that particular host in Hawaii. (Rodriguez-Velez).

AN ANTHRIBID BEETLE (Araeocorynus cumingi Jekel) has been picked up by Federal Plan Quarantine Inspectors on 4 occasions. Once in Nucuma sp. seed ornament bought in Hawaii and taken to the mainland, from where it was returned on August 25, 1963, because of the infestation; 2 times in passengers' baggage leaving Hawaii on November 13, 1963; and one time on February 20, 1964. On November 24, 1963, four specimens were collected from a window screen at a beach home in Ewa; intensive search revealed no other specimens. These 4 specimens presumably emerged from beads bought in Laie, Oahu. Whether this anthribid beetle is established on Oahu is not yet known, as seed beads may have been imported. However, all reports from the mainland where this species has been intercepted are from seed beads bought in Hawaii. This may confirm Miss Mabel Chong's report in the September 1963 meeting of the Hawaiian Entomological Society (CEIR 13(41):1223) as a new insect record for Hawaii. (E. S. Shiroma).

INTERCEPTIONS OF SPECIAL INTEREST AT U.S. PORTS OF ENTRY

Some important interceptions that were reported by the Plant Quarantine Division, ARS, USDA, on February 28, 1964, follow. These reports are based on identifications received from Federal taxomonists at the U.S. National Museum during the month, and include any of special interest from recent months that were not previously reported.

A GIANT AFRICAN SNAIL (Achatina fulica Bowd.) twice at Honolulu, Hawaii, in baggage and in cargo.

CITRUS BLACKFLY (Aleurocanthus woglumi Ashby) once in baggage at San Pedro, California, and once in cargo at Brownsville, Texas.

MEXICAN FRUIT FLY (Anastrepha ludens (Loew)) 81 times (75 times in baggage, 4 times in stores and 2 times in cargo): In Texas at Brownsville (3), Del Rio (3), El Paso (18), Eagle Pass (2), Galveston (1), Laredo (27), Roma (1) and San Antonia (1); in Arizona at Nogales (9); in California at Calexico (4) and San Ysidro (7); in Alabama at Mobile (1); in Florida at Tampa (1); and in New York at New York (1) and J. F. Kennedy International Airport (2).

A BRUCHID (Bruchus signaticornis Gyll.) (a pest of aritchoke in the Mediterranean area) in baggage at New York, New York.

MEDITERRANEAN FRUIT FLY (Ceratitis capitata (Wied.)) 41 times (26 times in baggage, 13 times in stores and 2 times in quarters): In Massachusetts at Boston (7), in Illinois at Chicago (1), in Hawaii (5), in Pennsylvania at Philadelphia (3), in Florida at Tampa (2), in Puerto Rico at San Juan (2), in California at San Francisco (1) and San Pedro (1), in New York at J. F. Kennedy International Airport (2) and New York (16), and in Texas at Houston (1).

ORIENTAL FRUIT FLY (Dacus dorsalis Hend.) 10 times in baggage and once in mail at Honolulu, Hawaii.

OLIVE FRUIT FLY (Dacus oleae (Gmel.)) 13 times in baggage: In Michigan at Detroit (1), in Massachusetts at Boston (7), in New York at J. F. Kennedy International Airport (4) and New York (1).

CELERY FLY (Euleia heraclei (L.)) twice in stores; once each at New York, New York, and Boston, Massachusetts.

BEAN BUTTERFLY (Lampides boeticus (L.)) in stores of Pisum sp. at San Francisco, California.

EUROPEAN CHERRY FRUIT FLY (Rhagoletis cerasi (L.)) once in each of stores and baggage at Boston, Massachusetts.

A FRUIT-TREE SPIDER MITE (Tetranychus viennensis Zacher) (a pest of apples and pears in Europe and Japan) in baggage at New York, New York, and in stores at Seattle, Washington.

WHITE GARDEN SNAIL (Theba pisana (Müller)) 9 times in miscellaneous cargo: In South Carolina at Charleston (3), in Louisiana at New Orleans (2), in New York at New York (3) and in Massachusetts at Boston (1).

A CRANE FLY (Tipula scripta Mg.) (second interception record of this common European species) in baggage of moss plants at J. F. Kennedy International Airport, New York.

KHAPRA BEETLE (Trogoderma granarium Everts) (or probably that species) 70 times (11 times in stores, 11 times in ships' holds, 1 time in baggage and 47 times in cargo): In South Carolina at Charleston (8), in Virginia at Norfolk (2), in New York at New York (20), in Pennsylvania at Philadelphia (11), in Oregon at Portland (3), in Georgia at Savannah (2), in Maryland at Baltimore (7), in North Carolina at Wilmington (2), in Massachusetts at Boston (1), in Washington at Seattle (6), in Hawaii (2), in California at San Pedro (2), in Michigan at Detroit (1) and in Texas at Houston (2) and Galveston (1).

(Weather continued from page 396).

Wednesday at noon the cold front extended from Oklahoma to the Ohio River Valley, thence northeastward toward Lake Ontario. Several tornadoes occurred in Kansas and Oklahoma. In the Late afternoon and evening, about a score of tornadoes swept central and eastern Kansas and western Missouri. Violent weather continued through the last half of the week. Tornadoes, funnel clouds, large hail, and cloudburst rains occurred over parts of the central and southern Great Plains and lower Mississippi River Valley. Tornadoes were noted in Nebraska, Kansas, Oklahoma, Texas, Illinois, Mississippi, northwestern Florida, and southern Georgia.

A new storm intensified over the Great Basin. It produced snow and cold rain over the Great Basin and northern Rocky Mountains. At the end of the week, cloudiness and precipitation prevailed from Washington to Florida and from Texas to the Ohio River Valley. Sunny skies were seen over the Southwest and in New York and New England. (Summary supplied by U.S. Weather Bureau).

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service
Plant Pest Control Division
Federal Center Building
Hyattsville, Maryland 20781

April 1, 1964

PPC DIVISION MEMORANDUM NO. 801.31

To: PPC Field Stations

From: E. D. Burgess, Director

Subject: Procedures for handling pesticides safely

I INTRODUCTION

This memorandum is for Plant Pest Control Division employees who handle, transport, store, apply pesticides, clean up pesticide storage areas, and dispose of used containers and pesticide-packaging materials. This memorandum supersedes PPC Division Memorandum No. 801.31 dated May 14, 1963.

The label on the pesticide container will indicate the stringency of precautions to be taken while using the specific pesticide. Pesticides vary in type, chemical composition, and toxicity. When handling, storing, and applying pesticides, remember that pesticides are classified as being: very hazardous, moderately hazardous, or of a low hazard level. In other words, all insecticides are hazardous, differing only in the degree of hazard. Regardless of the level of toxicity, proper precautions must be followed in handling, mixing, applying, and storing.

The precautions given in this memorandum increase in importance with the increase in the level of toxicity of the pesticide involved. Read the label on the pesticide container with care. That information was prepared for your protection as a user and handler.

II YOUR RESPONSIBILITY AS AN EMPLOYEE

A Follow safety instructions as outlined by your supervisor.

B Handle pesticides safely and in accordance with label instructions.

C Use and maintain the protective equipment as instructed by your supervisor.

D Consult with your supervisor regarding treatment if you feel ill.

E Report to your supervisor any on-the-job pesticide handling or use procedure that you believe to be unsafe.

F Remember that carelessness with pesticides cannot be tolerated because other employees may be affected.

III PESTICIDES CAN BE USED SAFELY

Everyone who works with pesticide chemicals--the farmer, the aerial applicator, the home gardner, the nurseryman, the housewife spraying her house plants, and even warehouse and trucking personnel, should know the precautions which must be taken to protect themselves and others from the effects of the more highly toxic pesticides. It is to our interest as Plant Pest Control Division representatives to set the example in demonstrating that pesticides can be used safely.

IV USE THEM PROPERLY

Pesticides properly used are valuable tools. Select for the specific need and use correctly. Before starting the application on any pesticide program, you must understand how the work is to be done. Pests can be more effectively dealt with at some stages of their life development than at other periods, therefore, select the stage most applicable to control measures. Our operations must be in conformity with the latest Plant Pest Control Division instructions and regulations governing their use.

V THE LABEL IS IMPORTANT

Become familiar with the information printed on the label.

The manufacturer of pesticide chemicals is required by law to identify and label each container of his product. This label lists the chemicals, the percentage of active ingredients, the approved usages, safe rates and time of application, mixing and application instructions, necessary precautions, and first-aid treatment required when an individual is suspected of being over exposed to the pesticide.

It is most important that you read the label and understand for what purpose and how the pesticide can be safely used. Remember, pesticides are poisonous, and may, if not correctly used, injure man, animals, and beneficial insects. Make sure you have the correct pesticide, use it in the proper formulation, apply it as directed, and make certain that it is used at recommended dosages.

Your actions afford you the opportunity to demonstrate your ability to use pesticides safely, correctly, and effectively for the benefit of yourself and others.

If you have any questions regarding the safest way to conduct your work assignment, consult your supervisor.

VI TRANSPORTING AND STORING PESTICIDES

Pesticides are not to be carried in vehicles used for passenger transport unless special precautions are taken to prevent spillage and contamination of vehicle with fumes.

Pesticide chemicals, in open or unopened containers, must not be stored in rooms that are used for storage of feed or food products.

Avoid contact with pesticides and empty containers that have been used for pesticide storage or transportation. If handling is necessary, follow label precautions.

VII PROTECTIVE EQUIPMENT IS FOR YOUR PROTECTION

Respirators or gas masks must be worn when irritating or toxic vapors or dusts are present in the work area. It is extremely important that the filter be appropriate for the pesticide involved. (See PPC Division Control Manual, 807-85, Respiratory Protective Devices) When goggles are required they must fit the face snugly. Gloves, rubber or plastic aprons, and specially treated clothing represent other protective items. Gloves, goggles, masks, etc. will be furnished by the Division. Do not hesitate to request such equipment from your supervisor when it is needed.

All that any of this equipment can do is to keep the toxic material from contact with the skin, out of the eyes, or filter it from the air being breathed. Protective equipment is good only as long as the man using the device does his part to correctly use and maintain the equipment. Respirator filters must be changed as often as the situation warrants.

Instructions for sanitizing protective equipment is contained in PPC Division Memorandum No. 801.29.

VIII HOW TO DISPOSE OF PESTICIDE CONTAINERS

Empty containers used for highly toxic pesticides must be completely destroyed so they cannot be used again as a container or salvaged for other use. Except containers which remain the property of the supplier.

Disposal methods must not leave chemicals on the surface of the soil, where ground water may carry them into streams or ponds.

Bags or cardborad containers should be burned and the ashes buried. Keep out of the smoke while the containers are being burned.

Glass pesticide containers should be broken and buried after they have served the original purpose.

All metal containers should be demolished beyond use and then buried at a place where there will be no danger of pond or stream pollution.

Dumps using the land-fill disposal method are good sites for disposal of metal containers. Adequate precaution must be taken at the dump to assure safe coverage of the containers.

It should be clearly understood that the pesticide containers are not to be left available for miscellaneous use by farmers, ranchers, or others such as dealers in scrap metal Exceptions can be made only if Division Director approves the action.

IX SAFETY IS IN YOUR HANDS

Avoid splashing or spilling any of the pesticide on skin or clothing. If this should happen, be ready to wash immediately with plenty of soap and water if the label so recommends. Contaminated clothing must be washed daily after working with pesticides. Wear clothing which can be easily washed each day. When working with a highly hazardous material, have a change of clothing available at work site.

When spraying or dusting in enclosed areas, wear an approved type of respirator or appropriate gas mask equipped with the proper filter whenever the label on the original pesticide container directs such action. Change filters frequently as needed. It is safer to use a new filter than take a chance on a used one. Equip gas masks with logbook to show time used and time remaining on canister. When working outside, always avoid the drift of the pesticide by working on the side from which the wind blows use a respirator or mask and protective clothing as required. Be sure protective equipment is available before starting the job.

If you or a coworker becomes ill when working with a pesticide, even when all precautions appear to have been taken, stop at once and request examination or treatment. A few of the chemicals used as pesticides have cumulative effects and daily exposure may be tolerated with no visible symptoms until a large accumulation has been received. Occasionally, workers after repeated exposure to a chemical, become allergic to it and are thereafter unable to work with formulations containing that material.

X FOLLOW THESE RULES

When using a pesticide chemical, know which pesticide is the most feasible for the situation needing treatment.

Read the label on the container and follow recommended safety practices.

Know the correct dosage and mixing requirements to prevent damage to plants and animals.

Use the respirator, gloves, or other protective equipment as recommended.

When applying dusts or sprays, work from a position which will keep the pesticide drift from falling on the operator.

Keep children or irresponsible adults, pets, and livestock out of loading or storage sites, and areas in which application is in process. These precautions are extremely important when using highly toxic pesticides.

Wash hands immediately after contact with pesticides, and before smoking or handling food. Do not eat, drink, or smoke while in the act of using pesticides.

Select sites for loading and storage that will prevent contaminating streams, ponds, cisterns, food stocks, or crops adjacent to work area.

Pick up and safely dispose of empty pesticide bags or containers immediately after use.

Never use milk or beverage bottles, or other types of food containers for storage of pesticides.

Clean up spilled pesticides at once.

Immediately remove clothing contaminated by accidental spillage. Change clothing and shower thoroughly after working with pesticides.

Become familiar with first-aid treatment needed in case of pesticide poisoning.

Know where and how medical help can be obtained as soon as needed if you or a coworker becomes ill as a result of handling pesticides.

Remember that experienced operators continuously keep the following points in mind:

1 All pesticides may be used safely.

2 You must follow the prescribed safety measures when working with pesticides.

XI MR. SUPERVISOR--IT'S YOUR RESPONSIBILITY

A To see that each employee receives adequate instructions and understands the importance of safe handling of the pesticide involved in this operation.

B To provide the essential protective equipment and instructions necessary to assure correct usage.

C To make advance arrangements with local medical service for immediate emergency treatment in case of over exposure to toxic pesticides and to inform employees how and where to obtain emergency treatment if such becomes necessary. Refer to section XII.

D To assure that soap, water, and towels are available at the job site for washing hands, face, and eyes as the job need may require. This is also required of the pesticide contractor in the PPC contracts.

E To locate disposal site and furnish instructions for disposal of used containers and other pesticide-packaging materials.

F To provide for storage sufficient to protect the pesticides from children as well as from use by unauthorized adults.

XII ESSENTIAL MEDICAL AID INFORMATION

Preventing pesticide injury is easier than providing the paper work and explanations required by a careless act resulting in over exposure to a pesticide.

A Antidotes for pesticides. The number following the pesticide name refers to the appropriate antidote instructions found following this pesticide listing.

Aldrin - 2
Ammate - 3
Ammonium sulfamate - 3
Bidrin - 4
BHC - 2
Black leaf 40 - 2
Calcium arsenate Paris green - 2
Calcium cyanamide - no need for antidote (Ingestion of alcohol following extensive application of chemical may cause vaso-motor reaction.)
Carbon disulfide - 6
Ceresan - 3

Chlordane - 2
Chloropicrin - 6
Corrosive sublimate - 3
Cryolite - 2
DDD - 2
DDT - 2
DDVP - 4
Dichloropropane-dichloropropene - 6
(D-D Mixture)
Dieldrin - 2
Dimethoate - 4
Dinitro soluble oil - 5
DN Dusts - 5
Dorlone - 6
Dowfume W-85 - 6
Dow General, Sinox - 5
EB-5 - 2
Endrin - 2
Ethylene-dibromide - 6
Ethylene-dibromide-chlordane - 2 and 6
GC-3707 - 4
Guthion - 4
Heptachlor - 2
Hydrochloric acid - 1
Hydrogen cyanide gas - 7
Lindane - 2
Malathion - 4
Methyl bromide - 6
Methyl parathion - 4
Methoxychlor - 2
Mirex - 2
Mylone W-85 - (4, omit atropine treatment)
Naled (Dibrom) - 4
Nemagon - 6
Nicotine sulphate - 2
OMPA - 4
Panogen - 3
Parathion - 4
Pentachlorophenol - 2
Phorate (Thimet) - 4
Phosdrin - 4
Phosphoric acid - 1
Sevin - 4
Sodium arsenite - 2
Sodium fluosilicate - 3
Sodium fluoride - 2
Standard lead arsenate - 2
Sulfuric acid - 1

Telone - 6
TEPP - 4
Thimet - 4
Toxaphene - 2
Trithion - 4
Vapam - 6
Zectran - 4
2, 4-D - 2
2, 4, 5-T - 2

Antidote No. 1: Call physician immediately.
Internal: Give 20 to 30 cc. (2/3 to 1 oz.) of Milk of Magnesia or preferably aluminum hydroxide gel well diluted with water. If these are not available, use whites of 2 or 3 eggs, well beaten. Give large quantities of water.
External: Wash with water, apply moistened sodium bicarbonate. If eyes are involved, flush with water, then with 1% sodium bicarbonate.

Antidote No. 2: Call physician immediately.
Internal: Give a tablespoonful of salt in a glass of warm water and repeat until vomit fluid is clear, then give 2 tablespoonfuls of Epsom Salt or Milk of Magnesia in water and plenty of milk and water. Have the victim lie down and keep quiet.
External: Wash with soap and water.

Antidote No. 3: Call physician immediately.
Internal: Give milk or white of egg beaten with water, then a tablespoonful of salt in warm water and repeat until vomit fluid is clear. Repeat milk or white of egg beaten with water.
External: Wash with soap and water. In case of contact remove all contaminated clothing immediately and wash skin with soap and plenty of water. If burning or blistering of skin results, get medical attention. If eyes are involved, flush with water for at least 15 minutes, get medical attention.

Antidote No. 4: Call physician immediately.
Internal: Induce vomiting by finger down throat or tablespoonful of salt in a glass of warm water. Repeat until vomit fluid is clear. Give plenty of milk or water. Atropine (.01 gr. each) in large doses should be administered by physician. Have victim lie down and keep quiet.
External: Remove from contaminated air. Remove contaminated clothing and immediately wash skin with soap and water. Do not reuse clothing until completely decontaminated. If breathing becomes impaired be prepared to start artificial respiration instantly.

Antidote No. 5: Call physician immediately.
Internal: Give tablespoonful of baking soda in warm water, repeat until vomit fluid is clear.
External: Wash with soap and water.

Antidote No. 6: Call physician immediately.
Remove promptly from contaminated atmosphere. Quickly remove any contaminated clothing. Give artificial respiration if breathing has stopped. Keep victim lying down and warm.

Antidote No. 7: Call physician immediately.
Carry victim to fresh air. Have him lie down. Remove contaminated clothing but keep victim warm. Start treatment immediately. If inhaled: Break an amyl nitrite pearl in a cloth and hold lightly under nose for 15 seconds. Repeat five times at about 15 second intervals. Give artificial respiration if breathing has stopped. If swallowed: Break an amyl nitrite pearl in a cloth and hold lightly under nose for 15 seconds. If victim is conscious or when consciousness returns, give a tablespoon of salt in a glass of warm water and repeat until vomit fluid is clear. Repeat inhalation of amyl nitrite five times at 15 second intervals. Give artificial respiration if breathing has stopped.

NOTE

NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PATIENT

ACIDS:
Flush eyes with water for approximately 15 minutes, get medical attention.

NICOTINE:
In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes, for eyes get medical attention. Remove and wash clothing before reuse.

B Know where to obtain emergency treatment. (Supervisor will supply applicable information to crew members prior to beginning of on-site operations). (See Control Manual, 807.86, Safe Handling of Chemicals and Emergency Treatment).

Contact the nearest location on the following listing in case you or a coworker becomes over exposed to one of the more highly toxic pesticides. (Quick availability to medical help is essential. Therefore, the listing need not be restricted to BEC designated physicians).

Dr. or Medical Unit ______________________________

Address ______________________________

Telephone number ______________________________

Dr. or Medical Unit ______________________________

Address ______________________________

Telephone number ______________________________

Dr. or Medical Unit ______________________________

Address ______________________________

Telephone number ______________________________

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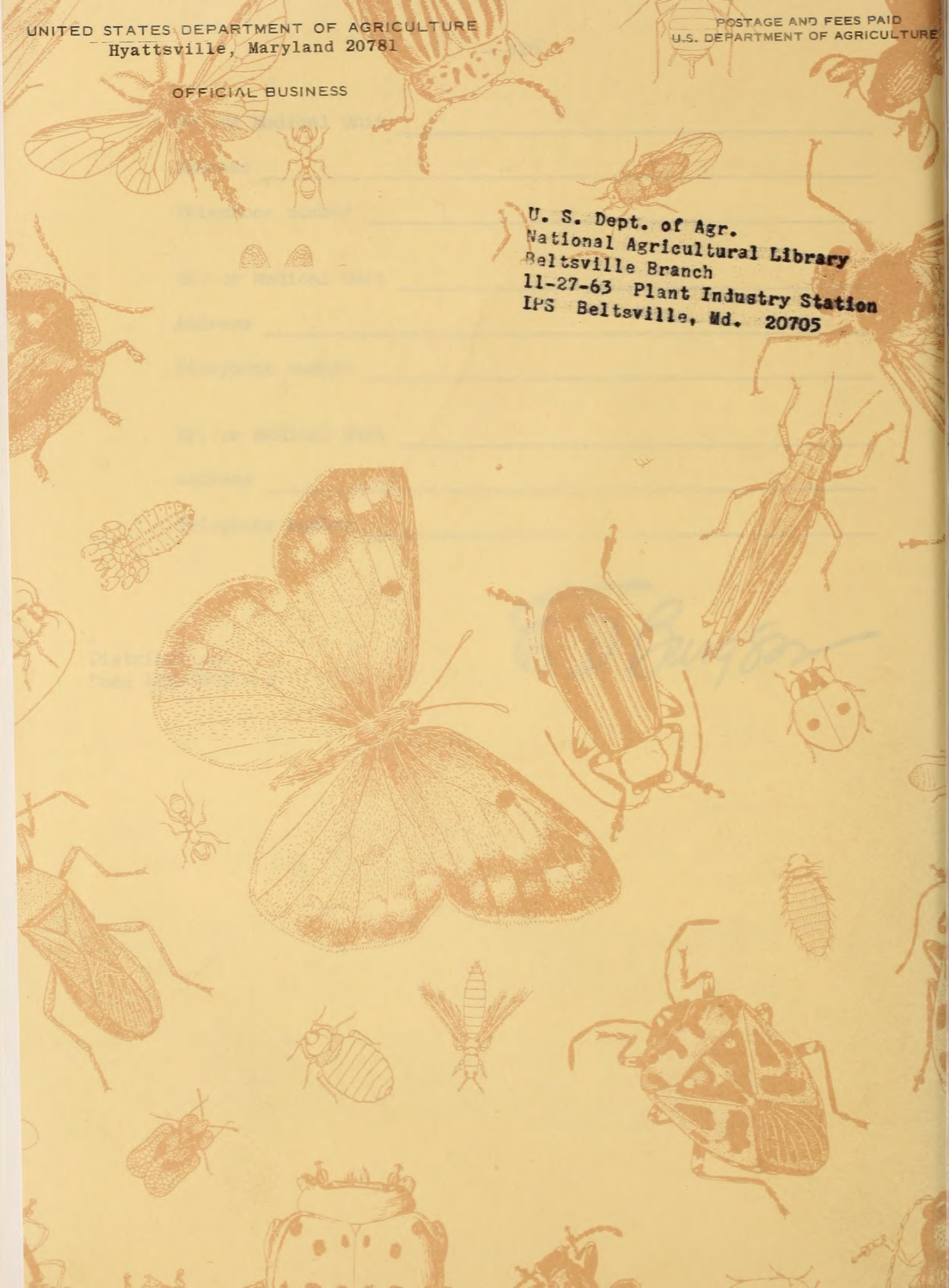

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